*Total number of printed pages–4*

**1 (Sem–4/FYUGP) BOT 42 MJ**

**2026**

**BOTANY**

( Major )

Paper : BOT4400204MJ

***( Morphology and Anatomy of Angiosperms )***

*Full Marks : 45*

Time : 2 hours

*The figures in the margin indicate full marks for the questions.*

1. Answer the following questions : 1×5=5

(a) Define ergastic substances.

(b) What are plasmodesmata ?

(c) What is Kranz anatomy ?

(d) What do you mean by quiescent centre ?

(e) What is dendrochronology ?

2. Answer the following questions : ***(any five)*** 2×5=10

(a) Write *two* roles of plant morphology in plant classification.

(b) Distinguish between simple tissue and complex tissue.

(c) What are transfer cells ?

(d) Mention *two* differences between dicot and monocot stem.

(e) What is the root cap ? State its function.

(f) Define heartwood and sapwood.

(g) What are hydathodes ?

(h) Whether spikelet is a racemose or a cymose type of inflorescence ? Where is it found ?



(i) Mention major types of stomata as found in angiosperms.

(j) What do you mean by composite fruits ? Mention *two* main types of composite fruits.

3. Answer the following questions as instructed : ***(any four)*** 5×4=20

(a) Explain the Telome theory in relation to evolution of plant organs.

(b) Describe the types of vascular bundles with examples.

(c) Explain the origin and development of leaves.

(d) Describe the organization of shoot apex according to Tunica–Corpus theory.

(e) Write a note on secondary growth in dicot stem.

(f) Describe the structure and functions of periderm.

(g) Explain the role of plant anatomy in forensic sciences.

(h) Write an explanatory note on tyloses.

4. Answer the following questions : ***(any one)*** 10×1=10

(a) Describe the structure and development of root apex and discuss the Korper–Kappe theory. 6+4=10

(b) Discuss the anatomical adaptations of xerophytes and hydrophytes with suitable examples. 5+5=10

(c) Describe the morphology of carpel. Explain different theories in connection with the morphology of carpel. 3+7=10

(d) Describe the structure, origin, and functions of vascular cambium in angiospermic plants. Add a neat labelled diagram showing the activity of cambium during secondary growth. 7+3=10